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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/918,257	07/30/2001	Geoffrey B. Gretton	RPC-6US	2240

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10/06/2003

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 10/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/918,257

Applicant(s)

GRETTON ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 14-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-23 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5,7.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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1. The election has been received and is addressed below.

The applicant filed three information disclosure documents, citing approximately 100 references. Of these, numerous documents, such as US 5080706, seem merely cumulative and/or peripherally relevant to the instant claims, are cited. It is unclear why these were cited because they do not appear to be "material to patentability" of the claimed invention (37 CFR 1.56).

MPEP 2004, particularly paragraph (13), sets forth guidelines to aid applicants in their duty of disclosure. In this section it is stated "It is desirable to avoid submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant or marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to the applicant's attention and/or are known to be of most significance. See Penn Yan Boats, Inc., v. Sea Lark Boats, Inc., 359 F. Supp. 948, 175 USPQ 260 (S.D. Fla. 1972), *aff'd*, 479 2d 1388, 178 USPQ 577 (5th Cir. 1973), *cert. denied* 414 U.S. 874 (1974)."

In an effort to clarify the "material" nature of these references to the patentability of the instant claims, applicants are requested to specify why each of the above referred to references were cited. (Note Applicants' PTOL-1449s).

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-13, drawn to a process of making a microlens array using a positive resist with a laser beam exposure and a embossing or molding step, classified in class 430, subclass 321.
 - II. Claims 14-23, drawn to a microlens array, classified in class 359, subclass 626.

The inventions are distinct, each from the other because of the following reasons:

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3. Inventions group I and group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the microlens array can be made of a non-moldable or stampable material, may not use a laser exposure, may use as the initial master a direct replica of the desired microlens array, rather than an inverse or may use a negative resist.

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5. A telephone call was made to Maurice Klee on June 30, 2003 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

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7. Applicant's election of group 1, claims 1-13 in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9 Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

If the master is the negative of the surface configuration of the microlens array, then only only step (i), where the microlens array is directly cast/formed from the master or cases where two generations of masters are used to form from that master a microlens array which has the negative configuration from the original master.

The original is a negative of the desired lens, the first generation master is a positive of (just like) the desired microlens array and the second generation master would be the negative of the desired microlens array.

The specification indicates on page 13 at lines 25-30 that the original has concave features and can be use to directly form convex arrays, while a an intermediate master/tool is used to form concave arrays.

10 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12 Claims 1-5 and 7-13 are rejected under 35 U.S.C. 102(b) as being anticipated by in the alternative, under 35 U.S.C. 103(a) as obvious over Hutley, M.C., "Optical Techniques for the generation of Microlens Arrays", J. Mod. Opt., Vol. 37(2) pp. 253-265 .

Hutley, M.C., "Optical Techniques for the generation of Microlens Arrays", J. Mod. Opt., Vol. 37(2) pp. 253-265 uses a positive acting AZ-1400 resist which is exposed to the interference pattern of three laser beams which are negative lenses. (page 256 and figure 4a). "The equivalent positive lenses may be derived from them by replication". (page 256) With adjustment of the beams, the resist pattern may be that formed in figure 5a, which can be reflowed slightly to form the hexagonal pattern shown in figures 5b and 5c.

The direction by Hutley, M.C. on page 256 to use the negative to form the equivalent positive lens by replication from the negative is held to anticipate the claimed invention, if this is not upheld, then the examiner adopts the position that the claims are obvious over the disclose which forms the negative microlens array and directs one to derive the equivalent positive microlens array from it by replication.

The language of the claims does not require any particular mode of replication, therefore the direction to do so by Hutley, M.C. on page 256 is considered to meet that limitation.

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13 Claims 1-5 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutley, M.C., "Optical Techniques for the generation of Microlens Arrays", J. Mod. Opt., Vol. 37(2) pp. 253-265, in view of Shvartsman '689.

Shvartsman '689 describes the coating of a photoresist film on a substrate, embossing a pattern into it, curing it while in contact, peeling and transferring the relief image in the photoresist film to another surface by stamping. (8/56-9/21) The use of roller or flat die shapes is disclosed. (9/22-55). See also the examples. Holograms can include images and or text stored holographically.

It would have been obvious to one skilled in the art to modify the process of Hutley, M.C., "Optical Techniques for the generation of Microlens Arrays", J. Mod. Opt., Vol. 37(2) pp. 253-265 by replicating the interferometrically produced microlens array by using it as a stamper based upon the known use of photoresists bearing interferometrically produced holographic patterns as evidenced by Shvartsman '689.

14 Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Claims 1-5 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutley, M.C., "Optical Techniques for the generation of Microlens Arrays", J. Mod. Opt., Vol. 37(2) pp. 253-265, in view of Shvartsman '689 and Hutley GB 2223861.

Hutley GB 2223861 teaches that in addition to spherical lenses, which are symmetric, the production of cylindrical lenses with minimum spacing between the lenses using the interference techniques is disclosed. (19/18-20/17). See also the packing shown in figures 4,6,9, and 12.

In addition to the basis provided above, the examiner holds that it would have been obvious to modify the invention of Hutley, M.C., "Optical Techniques for the generation of

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Microlens Arrays”, J. Mod. Opt., Vol. 37(2) pp. 253-265 combined with Shvartsman ‘689 by changing the exposure parameters as discussed by Hutley GB 2223861 to allow cylindrical lenses to be formed.

15 Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugawara et al. ‘977, in view of Hutley, M.C., “Optical Techniques for the generation of Microlens Arrays”, J. Mod. Opt., Vol. 37(2) pp. 253-265, Gale et al. ‘030 and Aoyama et al. ‘455.

Sugawara et al. ‘977 teaches with respect to figures 23 and 24, the use of positive resists and to directly pattern a positive resist to form a concave microlens array. (10/1-24) The desirability of close packing is disclosed. (9/7-10).

Gale et al. ‘030 teach the use of laser scanning of positive resists to form microlenses. (see figures and 3/18-25,3/60-4/42)

Aoyama et al. ‘455 teach fill factors and forming lenses close to each other so that thier profiles intersect.

It would have been obvious to modify the process of Sugawara et al. ‘977 by using lasers for the exposure as this is known in the art as evidenced by Gale et al. ‘030 and replicate a positive (convex) lens array from the negative (concave) lens array based upon the direction within Hutley, M.C., “Optical Techniques for the generation of Microlens Arrays”, J. Mod. Opt., Vol. 37(2) pp. 253-265 and to ensure that the lenses were packed closely together based upon the teachings within Sugawara et al. ‘977 and Aoyama et al. ‘455 concerning efficiency.

16 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cowan ‘216 is cited by Hutley.

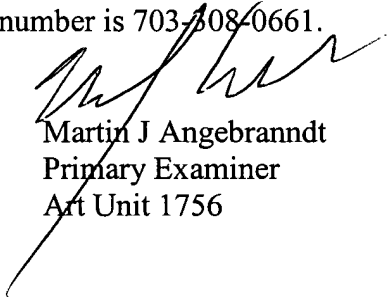
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Brueck et al. '113 relates to the interferometric formation of resist patterns.

17 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J Angebranndt
Primary Examiner
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September 29, 2003